RECEIVED
CENTRAL FAX CENTER
JUN 2 3 2008

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 11 (canceled)

Claim 12 (currently amended): A computerized method for generating prognoses for operative systems on a basis of multidimensional data records describing a state of a system, product and/or process, by utilizing the self-organizing maps method, which comprises:

determining an ordered grid of nodes representing a data distribution;

for taking into account nonlinearities in the data, effecting an internal scaling of variables based on a nonlinear influence of each variable on a prediction variable ;

determining local receptive regions assigned to the nodes and calculating local linear regressions on a basis of the local receptive regions;

calculating optimized prediction values for controlling the operative system with the aid of a set of local prediction models thus obtained, by determining a respectively adequate

node for each new data record and applying a local prediction model to the data record; and

at least one of:

outputting at least one of the local prediction models or optimized prediction values for display on a visualization unit; and

controlling the operative system based on the calculated optimized prediction values.

Claim 13 (previously presented): The method according to claim 12, wherein the operative system is a set of control processes.

Claim 14 (previously presented): The method according to claim 12, wherein the data sets are descriptive of a state selected from the group consisting of system states, product states, and process states.

Claim 15 (previously presented): The method according to claim 12, which comprises forming for each variable a measure for an order of the variable in the SOM representation and forming a measure for a contribution of the variable to the explained

variance, determining new internal scalings from the measures on a basis that an estimated change in the explained variance is maximized by varying the internal scalings, to thereby order the variables in a resulting SOM representation in accordance with respective contributions thereof to the explained variance and to more accurately resolve the existing nonlinearities.

Claim 16 (previously presented): The method according to claim 12, wherein the step of determining local receptive regions assigned to the nodes comprises respectively selecting a magnitude thereof to be so large that the explained variance of the local regression is at a maximum, while simultaneously safeguarding a significance and a stability in the region of the node.

Claim 17 (previously presented): The method according to claim 16, wherein the step of determining local receptive regions assigned to the nodes comprises selecting in each case a receptive region, which is the smallest necessary receptive region, for a significance of the regression, and is the largest possible receptive region for maximizing an accuracy of the prognosis.

Claim 18 (previously presented): The method according to claim

12, which comprises performing the internal scaling iteratively.

Claim 19 (previously presented): The method according to claim 12, which comprises preliminarily subjecting supplied data in advance to compensating scaling to at least partially compensate for possible correlations between variables.

Claim 20 (previously presented): The method according to claim 19, wherein the compensating scaling comprises rescaling individual data sets, with values of a respective variable of all the data sets being standardized, thereafter transforming the data into a principal component space and calculating the compensating scalings of the individual variables on a basis that a distance measure in the original variable space differs minimally from a distance measure in the standardized principal component space.

Claim 21 (previously presented): The method according to claim 20, which comprises multiplicatively combining the compensating scaling with the internal scaling that takes account of the nonlinearities in the data, for forming a combined variable scaling on which a thusly modified SOM representation is based.

Claim 22 (currently amended): A system for generating prognoses for operative systems on a basis of multidimensional data records describing a state of a system, product and/or process, comprising:

a database for storing the data records;

a self-organizing maps (SOM) unit for determining an ordered grid of nodes representing a data distribution;

a nonlinearity feedback unit associated with said SOM unit and configured for internal scaling of variables in order to compensate a nonlinear influence thereof on a prediction variable;

a calculation unit associated with said SOM unit and configured for determining local linear regressions on a basis of local receptive regions assigned to the nodes; ~~and~~

a prediction unit configured to use local prediction models thus obtained as a basis for calculating optimized prognosis values by determining a respectively adequate node for each new data record and to apply the local prediction model to the respective data record; and

at least one of:

a visualization unit for visually displaying at least one of the local prediction models or optimized prediction values; and

at least one control unit for controlling the operative system based on the calculated optimized prediction values.

Claim 23 (previously presented): The system according to claim 22 configured to generate prognoses for control processes.

Claim 24 (previously presented): The system according to claim 22, which comprises a plurality of control units, assigned to individual process states, connected to said prediction unit and configured to predict process results that would arise from current process data.

Claim 25 (currently amended). The system according to claim 24, which comprises process units separately connected to said control units, said process units being configured to derive control parameters on a basis of the predicted process results and of desired values for the process respectively to be carried out in the operative system[[-]].

Claim 26 (new): A computerized method for generating prognoses for operative systems for automatic control of at least one of marketing measures, financial transactions and industrial production on a basis of multidimensional data records describing a state of a customer, system, product and/or process, by utilizing the self-organizing maps method, which comprises:

determining an ordered grid of nodes representing a data distribution;

for taking into account nonlinearities in the data, effecting an internal scaling of variables based on a nonlinear influence of each variable on a prediction variable ;

determining local receptive regions assigned to the nodes and calculating local linear regressions on a basis of the local receptive regions;

calculating optimized prediction values for controlling the operative system with the aid of a set of local prediction models thus obtained, by determining a respectively adequate node for each new data record describing marketing, financial, production or processing properties, and applying a local prediction model to the data record; and

automatically controlling the operative system based on the calculated optimized prediction values.

Claim 27 (new): The method according to claim 26, wherein the operative system is a set of control processes.

Claim 28 (new): The method according to claim 26, wherein the data sets are descriptive of a state selected from the group consisting of system states, product states, and process states.

Claim 29 (new): The method according to claim 26, which comprises forming for each variable a measure for an order of the variable in the SOM representation and forming a measure for a contribution of the variable to the explained variance, determining new internal scalings from the measures on a basis that an estimated change in the explained variance is maximized by varying the internal scalings, to thereby order the variables in a resulting SOM representation in accordance with respective contributions thereof to the explained variance and to more accurately resolve the existing nonlinearities.

Claim 30 (new): The method according to claim 26, wherein the step of determining local receptive regions assigned to the

nodes comprises respectively selecting a magnitude thereof to be so large that the explained variance of the local regression is at a maximum, while simultaneously safeguarding a significance and a stability in the region of the node.

Claim 31 (new): The method according to claim 30, wherein the step of determining local receptive regions assigned to the nodes comprises selecting in each case a receptive region, which is the smallest necessary receptive region, for a significance of the regression, and is the largest possible receptive region for maximizing an accuracy of the prognosis.

Claim 32 (new): The method according to claim 26, which comprises performing the internal scaling iteratively.

Claim 33 (new): The method according to claim 26, which comprises preliminarily subjecting supplied data in advance to compensating scaling to at least partially compensate for possible correlations between variables.

Claim 34 (new): The method according to claim 33, wherein the compensating scaling comprises rescaling individual data sets, with values of a respective variable of all the data sets being standardized, thereafter transforming the data into a principal component space and calculating the compensating

scalings of the individual variables on a basis that a distance measure in the original variable space differs minimally from a distance measure in the standardized principal component space.

Claim 35 (new): The method according to claim 34, which comprises multiplicatively combining the compensating scaling with the internal scaling that takes account of the nonlinearities in the data, for forming a combined variable scaling on which a thusly modified SOM representation is based.